Reconsideration of this application as amended is respectfully requested. Claims 1-9, 38-47, 84-86, 119 and 120 are pending. Claims 1, 39, 84, 119, and 120 have been amended. Claims 121-123 have been added. No claims have been canceled. No new matter has been added as a result of these amendments or the added claims.

The Examiner rejected claims 1, 2, 38-40 and 120 under 35 U.S.C. § 102(b) as being anticipated by Decegama (WO 99/28865). The applicants respectfully disagree with the rejection because Decegama does not disclose each and every element of the invention as claimed in claims 1, 2, 38-40 and 120.

Claim 1 as amended teaches "a wavelet-based image processing path to enhance an input image in a wavelet domain, wherein the processing path includes a unit to sharpen the input image or smooth data corresponding to the input image." The applicants respectfully disagree with the rejection because Decegama does not disclose each and every element of the invention as claimed in amended claims 1.

The examiner argued that Decegama discloses a system comprising one or more wavelet-based processing blocks to enhance an input image (Office Action, page 2 and page 3).

The applicants respectfully submit that Decegama discloses applying a wavelet transform to an image in such a way as to better define edge regions in the image (Decegama, page 4, lines 1-6). To achieve this, Decegama adjusts coefficients generated by a wavelet transform which are associated with the edge regions of an image (Decegama, page 8, lines 9-32). One such method is the use of a high-pass and low-pass filter to obtain the coefficients and then swapping

coefficients to better define the edge regions of the image (Decegama, page 6, lines 7-23 and page 8, line 23 to page 9, line 2).

With regard to claim 1, however, Decegama does not disclose "a wavelet-based image processing path to enhance an input image in a wavelet domain, wherein the processing path includes a unit to sharpen the input image or smooth data corresponding to the input image." Therefore, Decegama does not anticipate claim 1 because Decegama fails to disclose each and every element claimed by the Applicants in amended claim 1. The applicants respectfully request withdrawal of the rejection.

Regarding independent claims 39 and 120, as amended, Applicants respectfully submit that Decegama does not anticipate them for at least the reason discussed above with respect to claim 1. Withdrawal of the rejection is respectfully requested.

Claims 2 and 38 depend on claim 1, and claim 40 depends on 39. Since Decegama does not anticipate claims 1 and 39 as discussed above, Decegama does not anticipate claims 2, 38, and 40 for at least the same reason. Applicants respectfully request withdrawal of the rejections.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 102(b) has been overcome by the amendments and the remarks. Applicants submit that claims 1, 2, 38-40 and 120 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 39, 40 and 84-86 under 35 U.S.C. § 102(b) as being anticipated by Abdel-Malek et al. (U.S. Patent No. 5,497,777, hereinafter "Abdel-Malek").

Claim 39, as amended, describes enhancing an image by "including applying a forward wavelet transform to create a plurality of coefficients and filtering coefficients with a coefficient domain operator in a wavelet domain, including sharpening or smoothing data corresponding to

the input image" as claimed in amended claim 39. Applicants respectfully submit that Abdel-Malek fails to disclose each and every element of amended claim 39.

The examiner argued in the office action that Abdel-Malek discloses applying one or more wavelet-based processing blocks to coefficients resulting from applying the forward wavelet transform (Office Action, page 4, lines 1-7). The Examiner further argued that Abdel-Malek rescales and filters coefficients after thresholding (Office Action, page 4, lines 11-12).

Abdel-Malek merely describes removing speckle noise to enhance an ultrasound image. Although the reference refers to filtering the image, the filter is merely used as a descriptor to say that the true speckle noise is removed instead of image data (Abdel-Malek, column 6, line 67 to column 7, line 7). Therefore, Abdel-Malek does not describe "including applying a forward wavelet transform to create a plurality of coefficients and filtering coefficients with a coefficient domain operator in a wavelet domain, including sharpening or smoothing data corresponding to the input image" as claimed by the Applicants in amended claim 39.

The examiner further argued that Abdel-Malek anticipates claim 84 by disclosing "performing denoising by thresholding coefficients generated by applying the forward wavelet transform [and] rescaling coefficients by filtering coefficients after thresholding" (Office Action, page 4, paragraph 2). Applicants respectfully disagree and submit that Abdel-Malek fails to disclose each and every element as claimed in claim 84.

Claim 84 describes "performing denoising by thresholding coefficients generated by applying the forward wavelet transform; [and] rescaling coefficients by filtering coefficients after thresholding." In contrast, Abdel-Malek describes thresholding to remove speckle noise without distorting the true image obtained during an ultrasound (Abdel-Malek, column 6, lines 8-19). However, after Abdel-Malek performs thersholding, the image is then merely reconstructed

by performing the exact wavelet transform in reverse (Abdel-Malek, column 6, lines 20-42). Because performing the reverse of the original wavelet transform after thresholding is not "performing denoising by thresholding coefficients generated by applying the forward wavelet transform [and] rescaling coefficients by filtering coefficients after thresholding" as claimed by the applicants in claim 84, then Abdel-Malek does not anticipate claim 84 for at least the reasons discussed above.

Therefore, Abdel-Malek does not describe each and every element claimed by the applicants in claim 84. As a result Abdel-Malek does not anticipate claim 84 under 35 U.S.C. § 102(b). Applicants respectfully request withdrawal of the rejection.

Claims 40 and 85-86 depend on independent claims 39 and 84 respectively. Since Abdel-Malek does not anticipate claims 39 and 84, Abdel-Malek does not anticipate claims 40, 85, and 86 for at least the same reasons.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 102(b) has been overcome by the amendments and the remarks. Applicants submit that claims 39, 40 and 84-86 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner Rejected claim 119 under 35 U.S.C. § 102(b) as being anticipated by Katayama et al (U.S. Patent No. 5,905,579, hereinafter "Katayama").

Claim 119, as amended, describes a copier which has a wavelet-based image processing path used to enhance an image "wherein the processing path includes one or more units to sharpen or smooth data corresponding to the image data." The Applicants respectfully submit that Katayama does not disclose each and every element of amended claim 119.

The Examiner argued that Katayama described a copier having a wavelet-based image processing path for enhancing an image (Office Action, page 4, paragraph 5). The applicants

respectfully disagree. Rather, Katayama describes merely detecting regions in an image and separating those regions (Katayama, Abstract and figure 1). Katayama then describes generating data to distinguish the different regions and then allows an apparatus to process those different regions in a normal fashion (Katayama, column 8, lines 41-67).

However, Katayama does not describe a "copier having a wavelet-based image processing path for enhancing image data, wherein the processing path includes one or more units to sharpen or smooth data corresponding to the image data" as claimed by the applicants in amended claim 119. Therefore, since Katayama does not disclose each and every element claimed by the applicants in claim 119, Katayama does not anticipate claim 119.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 102(b) has been overcome by the amendments and the remarks. Applicants submit that claim 119 as amended is now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 3 and 41 under 35 U.S.C. § 103(a) as being unpatentable over Decegama in view of Shapiro (U.S. Patent No. 5,412,741, hereinafter "Shapiro").

As discussed above, the applicants respectfully submit that claim 1 and 39 are in condition for allowance. Since claims 3 and 41 depend indirectly on claims 1 and 39 respectively, and contains additional features that further limit claims 1 and 39, claims 3 and 41 are also in condition for allowance for at least the reasons discussed above with respect to claim 1 and 39.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 3 and 41 are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 4, 5, 42, and 43 under 35 U.S.C. § 103(a) as being unpatentable over Decegama in view of Chen et al (U.S. Patent No. 6,236,745).

As discussed above, the applicants respectfully submit that claims 1 and 39 are in condition for allowance. Since claims 4 and 5 depend indirectly on claim 1 and contain additional features that further limit claim 1, claims 4 and 5 are also in condition for allowance for at least the reasons discussed above with respect to claim 1. Furthermore, since claims 42 and 43 depend indirectly on claim 39 and contain additional features that further limit claim 39, claims 42 and 43 are also in condition for allowance for at least the reasons discussed above with respect to claim 39.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 4, 5, 42, and 43 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 6, 7, 44, and 45 under 35 U.S.C. § 103(a) as being unpatentable over Decegama in view of Creusere (U.S. Patent No. 6,148,111).

As discussed above, the applicants respectfully submit that claims 1 and 39 are in condition for allowance. Since claims 6 and 7 depend indirectly on claim 1 and contain additional features that further limit claim 1, claims 6 and 7 are also in condition for allowance for at least the reasons discussed above with respect to claim 1. Furthermore, since claims 44 and 45 depend indirectly on claim 39 and contain additional features that further limit claim 39, claims 44 and 45 are also in condition for allowance for at least the reasons discussed above with respect to claim 39.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 6, 7, 44, and 45 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 8 and 46 under 35 U.S.C. § 103(a) as being unpatentable over Decegama in view of Kouri et al (U.S. Patent No. 6,847,737).

As discussed above, the applicants respectfully submit that claim 1 and 39 are in condition for allowance. Since claims 8 and 46 depend indirectly on claims 1 and 39 respectively, and contain additional features that further limit claims 1 and 39, claims 8 and 46 are also in condition for allowance for at least the reasons discussed above with respect to claim 1 and 39.

Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 8 and 46 as amended are now in condition for allowance and such action is earnestly solicited.

The Examiner rejected claims 9 and 47 under 35 U.S.C. § 103(a) as being unpatentable over Decegama in view of Murao (U.S. Patent No. 6,141,452).

As discussed above, the applicants respectfully submit that claim 1 and 39 are in condition for allowance. Since claims 9 and 47 depend indirectly on claims 1 and 39 respectively, and contains additional features that further limit claims 1 and 39, claims 9 and 47 are also in condition for allowance for at least the reasons discussed above with respect to claim 1 and 39.
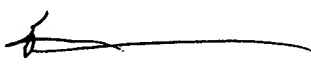
Accordingly, Applicants respectfully submit that the rejection under 35 U.S.C. § 103(a) has been overcome by the amendments and the remarks. Applicants submit that claims 9 and 47 as amended are now in condition for allowance and such action is earnestly solicited.

New claims 121-123 have been added without introducing any new matter. For at least the reasons discussed above with respect to claims 1, 39, and 84, Applicants submit that claims 121-123 are in condition for allowance and such action is earnestly solicited

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Respectfully submitted,
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